

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application:

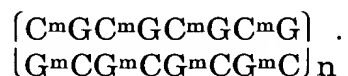
**Listing of Claims:**

1. - 31. (Cancelled)

32. (Currently amended) A method of inhibition of tumorigenesis wherein production of DNA demethylase is increased in comparison with that of a non-tumor cell and for altering a methylation pattern in a patient DNA comprising the step of administering to a patient in need thereof a therapeutically effective amount of an antagonist or inhibitor of DNA demethylase, thereby altering a methylation pattern in DNA, said DNA demethylase being selected from the group consisting of comprising amino acids 150-411 of SEQ ID NO:2, ~~or a homologue thereof~~ SEQ ID NO:4, SEQ ID NO:6 and SEQ ID NO:8.

33. (Previously presented) The method according to claim 32, wherein said antagonist is a double stranded C<sup>m</sup>G oligonucleotide that inhibits demethylase at a Ki of 50nM.

34. (Previously presented) The method according to claim 33, wherein said oligonucleotide is



35. (Currently amended) The method according to claim 32, wherein the inhibitor comprises an anti-DNA demethylase antibody or an antisense oligonucleotide of DNA demethylase or ~~an imidazole derivative~~ imidazole and derivatives thereof.

36. (Currently amended) The method according to claim 32, wherein a ~~change of~~ altering the methylation pattern ~~activates a silent~~ silences a gene.

37. (Cancelled)

38. (Cancelled)

39. (Withdrawn) A method of measuring demethylase activity comprising measuring a level of volatilization of a methyl group, released as methanol, from methyl-cytosine present in methylated DNA, wherein said level of volatilization of said methyl group as methanol is related to said demethylase activity.

40. (Withdrawn) The method of claim 39, further comprising determining a level of conversion of methyl-cytosine present in methylated DNA to cytosine present in DNA.